IN THE CLAIMS

1. (Currently Amended) A method for adapting a bus of a system to data traffic, which system comprises a plurality of functional units each having a processing unit and bus interface unit, between said functional units data being transferred through said bus in time slots recurring in accordance with a certain time frame, wherein said functional units are divided into at least two sets so that the functional units of a single set are interfaced with a separate sub-bus of their own, and said system further comprises a switching unit to unite different sub-buses into a more extensive bus,

the method comprising ~~steps~~, relating to an individual time slot[[;]]:

[[- ]]checking whether data has to be transferred across said switching unit from one sub-bus to another,

[[- ]]uniting the sub-buses in question if the result from the preceding step is positive,

[[- ]]separating the sub-buses in question again when the transfer, for which the sub-buses were united, is completed, and

[[- ]]keeping a particular sub-bus separated from the other sub-buses if there is no data transfer need therefrom across the switching unit in either direction,

wherein at least checking, uniting, separating, and keeping are implemented by said switching unit.

2. (Currently Amended) A method for adapting a bus of a system to data traffic, which system comprises a plurality of functional units each having a processing unit and bus interface unit, between said functional units data being transferred through said bus, wherein said functional units are divided into at least two sets so that the functional units of a single

set are interfaced with a separate sub-bus of their own and a supply voltage of the sub-bus is settable to at least two different levels, said system further comprising a switching unit to unite different sub-buses into a more extensive bus, the method comprising ~~steps;~~:

[[- ]]quantifying a mean data traffic rate for each sub-bus,

[[- ]]setting the supply voltage of a sub-bus to the lower one of said two levels if the data traffic rate of the sub-bus is smaller than a certain value.

3. (Original) A method according to claim 1, obtaining from a table drawn up beforehand an information about whether data has to be transferred in a certain time slot across the switching unit from one sub-bus to another.

4. (Original) A method according to claim 1 where the clock signals of the sub-buses are synchronized to one another, starting an uniting of two sub-buses at a moment when in both sub-buses a time slot is changing, to keep a data transfer within a single time slot in both sub-buses.

5. (Original) A method according to claim 1 where the clock signals of the sub-buses are not synchronized to one another, lengthening, if necessary, a clock cycle of one sub-bus to keep a data transfer within a single time slot in both sub-buses.

6. (Original) A method according to claim 2, quantifying the mean data traffic rate of a sub-bus on the basis of data transfer needs of application processes currently running in said system.

7. (Currently Amended) A bus structure of a system comprising a plurality of functional units each having a processing unit and bus interface unit, which bus structure is arranged to transfer data between the functional units in time slots recurring in accordance with a certain time frame,

wherein, to increase a transfer capacity of the bus, ~~it~~ the bus structure comprises at least two sub-buses with address, data, and control lines, to each of which sub-buses there is interfaced a set of said functional units, the bus structure further comprising a switching unit to unite said sub-buses into a more extensive bus and a power management unit to minimize energy consumption of the bus structure, which switching unit comprises a switch control unit joining the control lines of the sub-buses.

8. (Original) A bus structure according to claim 7, said power management unit comprising supply voltage stabilizers and frame synchronization units of said sub-buses.

9. (Canceled)

10. (Original) A bus structure according to claim 7, each of said functional units comprising a bus interface unit, which has a first buffer memory to store data and address information to be sent, a second buffer memory to store received data and address information and a control unit to store functional units' data transfer information and to arrange for the data transfers.

11. (Original) A bus structure according to claim 10, said first and second buffer memories being of the FIFO type.